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OPERATING SUMMARY

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MINISTRY OF THE ENVIRONMENT

SIDNEY TWP. ~ (BATAWA)

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Ontario

Ministry of the
Environment

135 St. Clair Avenue West
Toronto 195, Ontario

We are pleased to present you with the 1972 operating summary for the water pollution control plant serving your community.

This summary contains data on the performance of the plant as well as relevant financial information. Of particular interest is the review of the year's activities in which significant items of these data are discussed in some detail by the operations engineer and his staff who, by their day-to-day involvement with the operation, are thoroughly familiar with the plant.

We appreciate your continuing interest in protecting the environment through the efficient operation of this wastewater treatment facility.

D.S. Caverly,
Assistant Deputy Minister.

D.A. McTavish, P. Eng.,
Director,
Project Operations Branch.

MINISTRY OF THE ENVIRONMENT

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135 St. Clair Avenue West
Toronto 195

SIDNEY TWP. - (BATAWA)
WATER POLLUTION CONTROL PLANT

operated for

THE TOWNSHIP OF SIDNEY (BATAWA)

by the

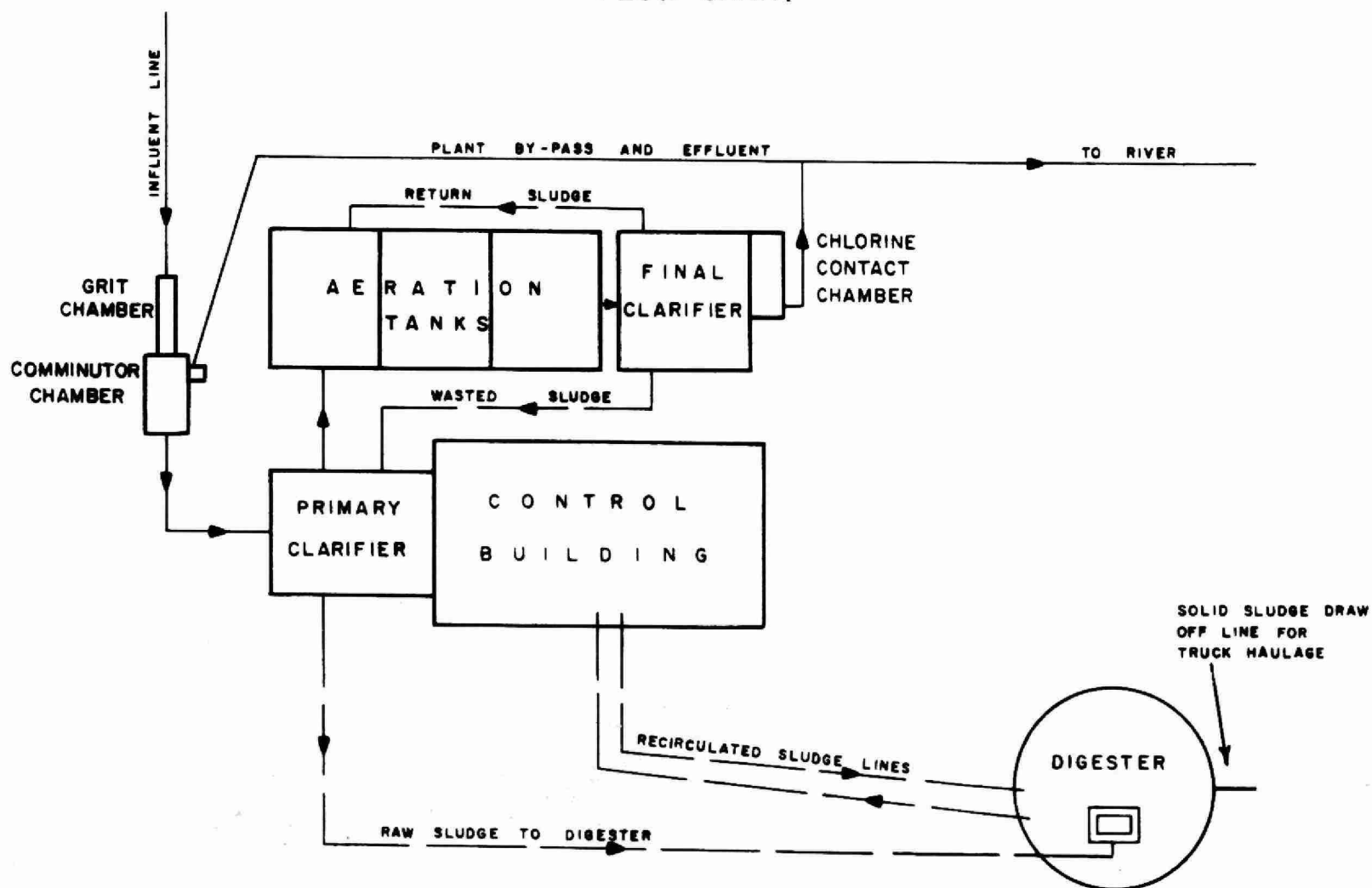
MINISTRY OF THE ENVIRONMENT

1972 ANNUAL OPERATING SUMMARY

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SIDNEY - BATAWA W P C P FLOW CHART



DESIGN DATA

PROJECT NO.	2-0121-62	<u>PRIMARY TREATMENT</u>
TREATMENT	Activated Sludge	<u>Grit Removal</u>
DESIGN FLOW	0.12 mgd	Type: Channels, manually cleaned Size: Two 9' 3" x 9" x 6" swd Flow Velocity: 0.6 fps Retention: 16.6 sec
DESIGN POPULATION	1,500	
BOD - Raw Sewage	220 mg/l	
- Removal	90%	<u>Comminution</u>
SS - Raw Sewage	250 mg/l	- One Chicago Pump, Model 10A
- Removal	90%	

Screening

One 1½" c-c on comminutor bypass
One 1½" c-c on plant bypass

Primary Sedimentation

Size: One 16' x 16' x 11' swd
(9,130 gal)
Retention: 1.83 hr
Loading: Surface, 468 gal/ft²/day
Weir, 3750 gal/ft/day

SECONDARY TREATMENT

Type: Diffused air; three-pass
Size: One 30' x 20' x 10' swd
(37,400 gal)
Retention: 7.5 hr

Diffusers: Ceramic Tubes

Spacing: 9 per pass (2 passes)
12 per pass (1 pass)

Air Supply

Type: Sutorbilt
Size: Two 140 scfm @ 6 psi

Secondary Sedimentation

Type: Falk
Size: One 20' x 12' x 10' swd
(15,000 gal)
Retention: 3.0 hr
Loading: Surface, 500 gal/ft²/day
Weir, 5000 gal/ft/day

CHLORINATION

Type: Advance
Size: 50 lb/day

Chlorine Contact Chamber

Size: One 10' x 4' x 8' (2,000 gal)
Retention: 24 min

OUTFALL

- to Trent River

SLUDGE HANDLING

Type: Fixed cover, integral heat
exchanger coils
Size: One 20' dia x 17' 4"
(6,000 cu ft or 37,500 gal)
Loading: 1.5 lb/cu ft/mo

'72 Review

GENERAL

This project consists of an 0.125 mgd conventional activated sludge plant employing single stage digestion. The plant has a design capacity of 262 pounds of BOD per day.

A new submersible pump has been purchased to replace the existing water pump. This pump will be used for the chlorinator, tank flushing and lawn watering.

EXPENDITURES

The 1972 operating cost for the plant was \$12,383.82. The cost of treating 1 million gallons of sewage was \$132.20.

PLANT FLOWS AND CHLORINATION

A total of 93.32 million gallons of sewage was treated representing an average daily flow of 0.25 million gallons per day which exceeded the design capabilities of the plant at all times due to infiltration of storm and ground water. The plant provided secondary treatment for up to 0.25 million gallons per day. Excess flows received primary treatment only.

Continuous attempts have been made to reduce the flows but to date, these have not resulted in any sizeable decrease in flows. The flows reached a maximum daily flow of 0.48 million gallons a day during the year.

Chlorination of the effluent was carried out at an average dosage of 2.7 mg/l and required 2,435 pounds of chlorine.

PLANT EFFICIENCY

The average concentration of influent BOD and suspended solids were 55 and 92 mg/l respectively and the effluent BOD and suspended solids were 8 and 12 mg/l respectively. This represents a reduction in BOD and suspended solids of 85 and 87 percent respectively. The effluent concentration of BOD and suspended solids are well within the Ministry's objectives.

SLUDGE DIGESTION AND DISPOSAL

A total of 608,000 gallons of raw sludge with an average solids content of 3.7 percent was pumped to the digester. There were 60,480 gallons of digested sludge disposed of by tank truck haulage.

CONCLUSIONS

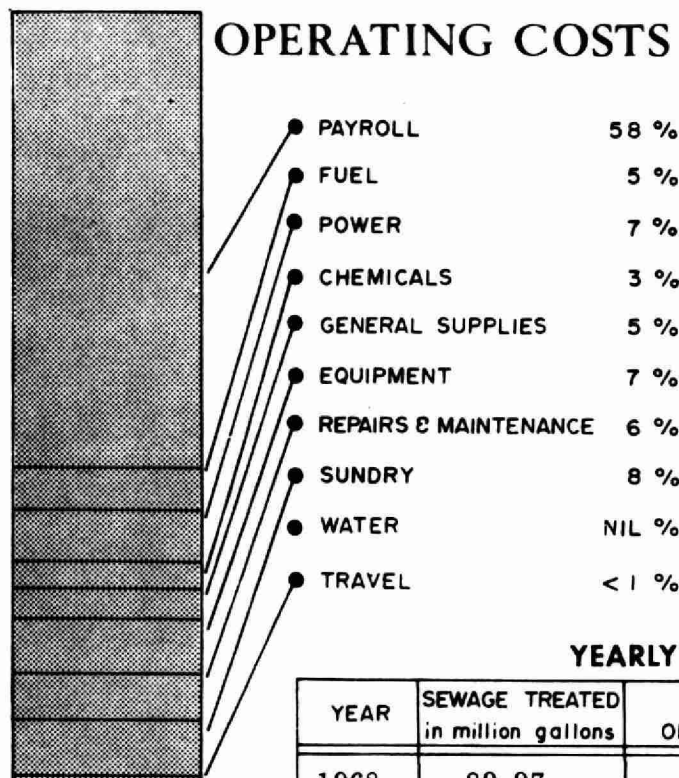
The operation of the water pollution control plant was satisfactory in 1972. Efforts to locate and reduce the amount of infiltration and ground water being received in the sanitary sewer system should be continued.

PROJECT COSTS

NET CAPITAL COST	\$162,152.89
DEDUCT - Portion financed by CMHC (Final)	<u>(109,605.08)</u>
Long Term Debt to MOE	\$ <u>52,547.81</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1972	\$ <u>21,585.87</u>
Net Operating	\$ 12,383.82
Debt Retirement	1,194.00
Reserve	762.95
Interest Charged	<u>2,946.83</u>
TOTAL	\$ <u>17,287.60</u>

RESERVE ACCOUNT

Balance @ January 1, 1972	\$ 6,628.10
Deposited by Municipality	762.95
Interest Earned	<u>444.37</u>
	\$ 7,835.42
Less Expenditures	<u>-</u>
Balance @ December 31, 1972	\$ <u>7,835.42</u>



1972 COSTS

TOTAL ANNUAL COST

NET OPERATING	72 %
DEBT RETIREMENT	7 %
RESERVE	4 %
INTEREST	17 %

YEARLY OPERATING COSTS

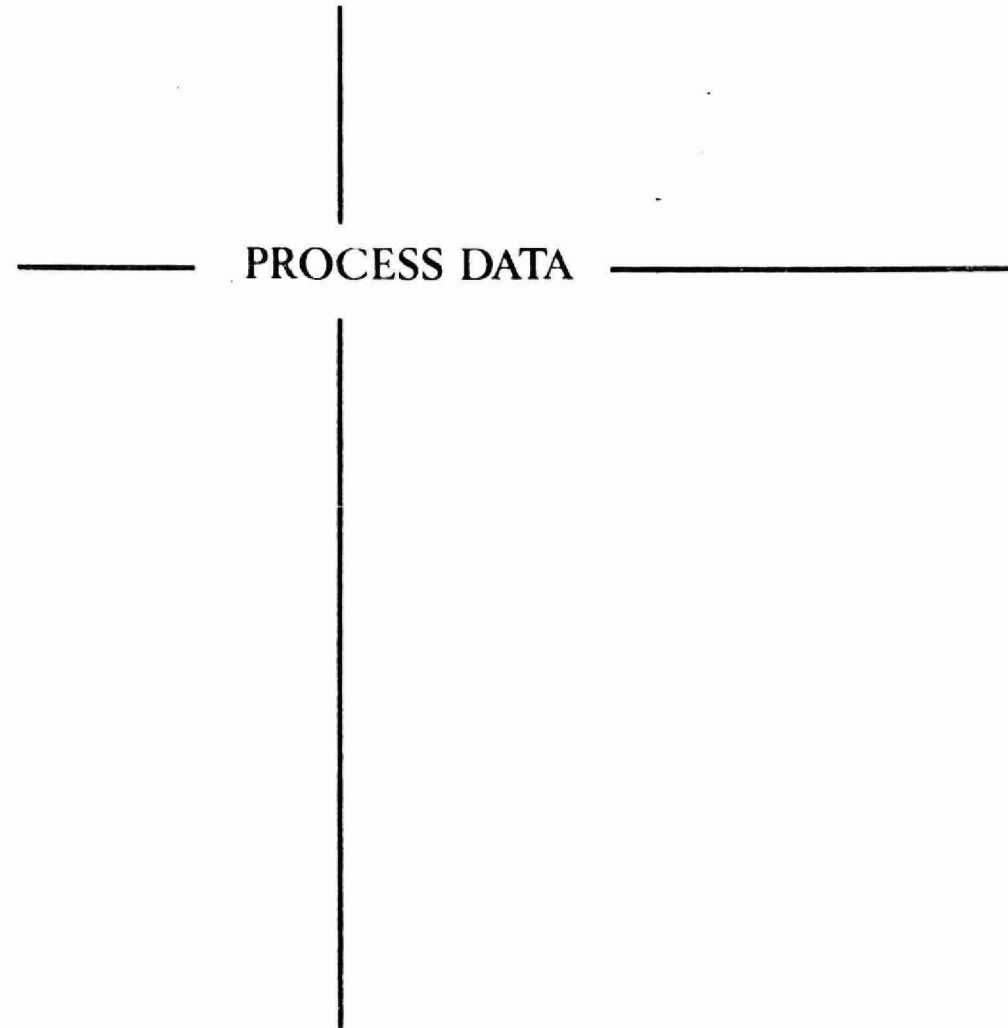
YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	TREATMENT COSTS	
			\$ per million gal	£ per lb BOD
1968	89.97	7,563.26	84.06	16 cents
1969	118.72	9,314.82	78.46	31 cents
1970	108.2	9,799.86	90.60	39 cents
1971	111.41	11,434.04	102.60	81 cents
1972	83.75	12,383.82	141.00	36 cents

MONTHLY OPERATING COSTS

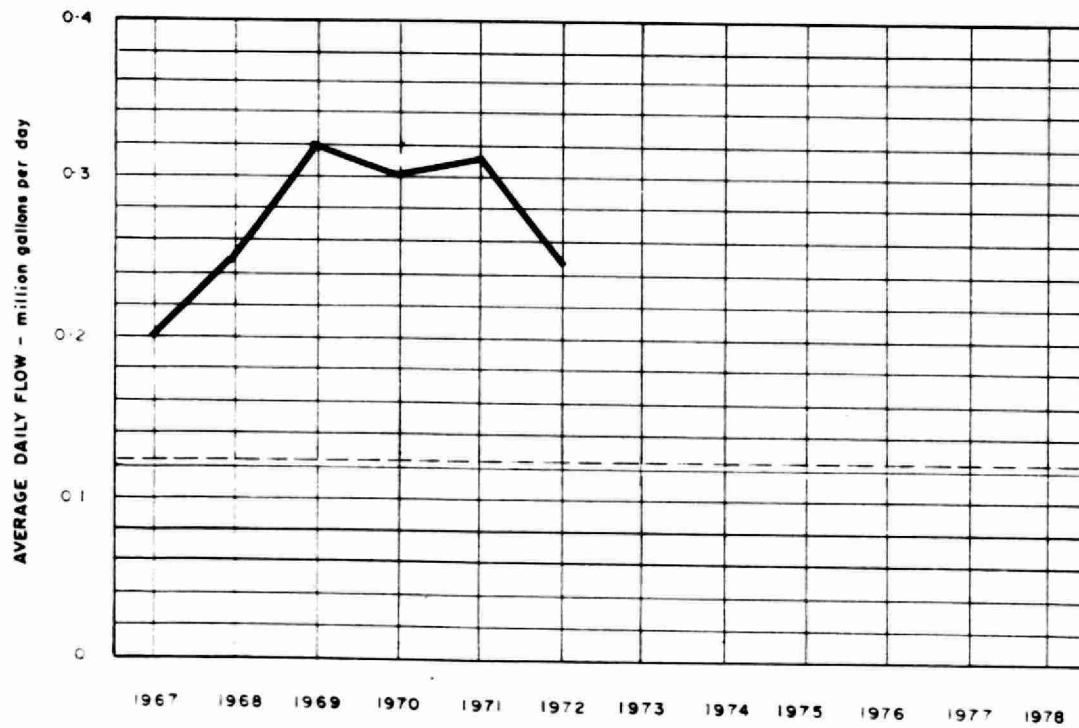
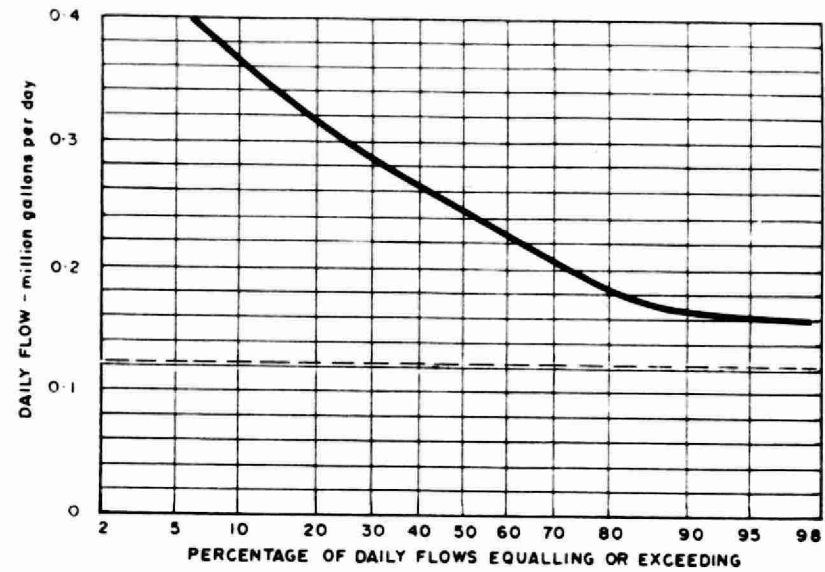
MONTH	TOTAL EXPENDITURE	REGULAR PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICALS	GENERAL SUPPLIES	EQUIPMENT	REPAIRS and MAINTENANCE	SUNDRY*	WATER	TRAVEL
JAN	551.47	425.78			76.92		48.77					
FEB	1443.14	424.86		140.76	72.09		45.13	748.12		12.18		
MAR	845.39	611.89			80.42		26.52			126.56		
APR	750.40	406.04		142.85	75.39		78.14			27.88		20.10
MAY	651.01	444.75		51.24	74.57		60.72			19.73		
JUNE	978.69	630.72		41.45	74.57	142.13	58.19		19.45	12.18		
JULY	132.71			33.31	67.14		13.68			18.58		
AUG	983.13	480.48				105.00	49.20		188.94	159.51		
SEPT	607.42			61.02	142.54		33.45		240.00	130.41		
OCT	207.24				67.97		26.12		87.53	25.62		
NOV	512.04	(105.66)		35.18			22.35	90.34		469.83		
DEC	4721.18	3907.93		97.75	137.04	105.00	165.41	87.39	195.04	25.62		
TOTAL	12383.82	7226.79		603.56	868.65	352.13	627.68	925.85	730.96	1028.10		20.10

Brackets indicate credit.

* Sundry includes sludge haulage costs of \$604.80



FLOWS

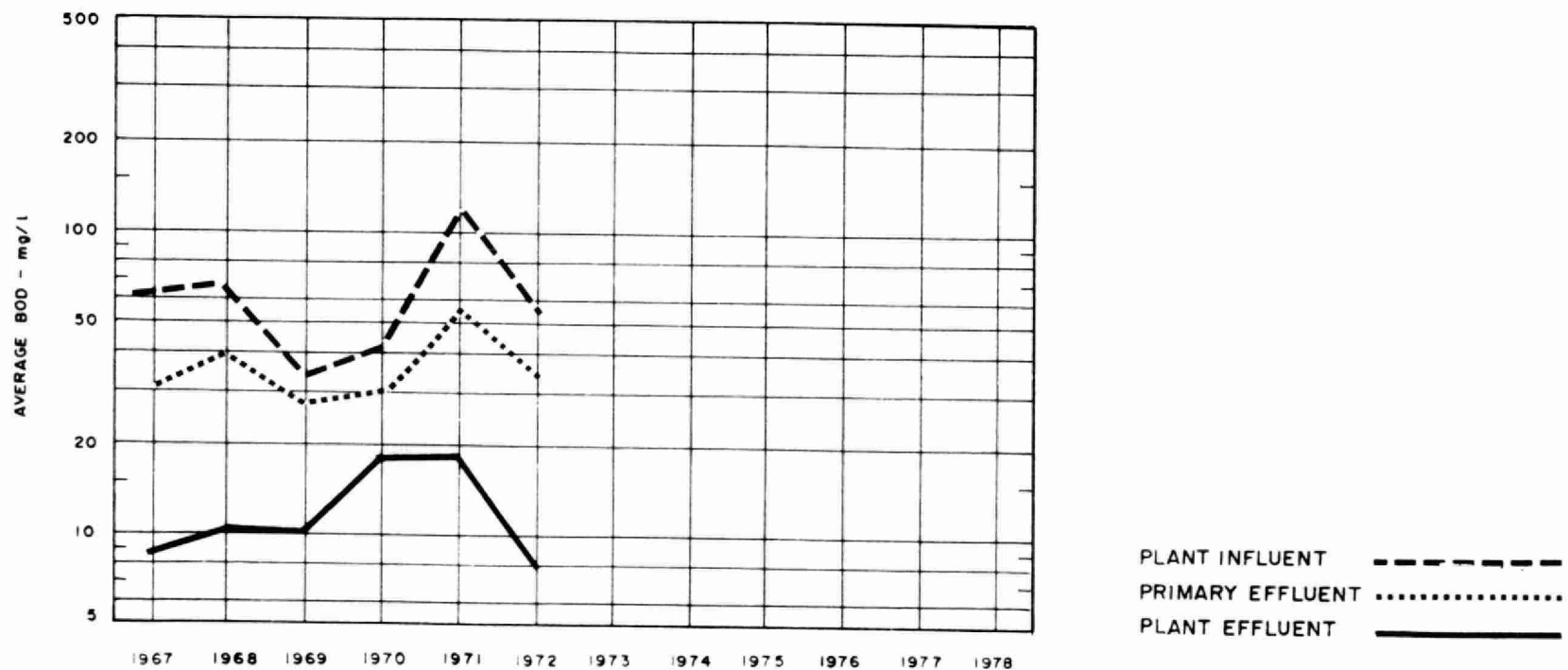
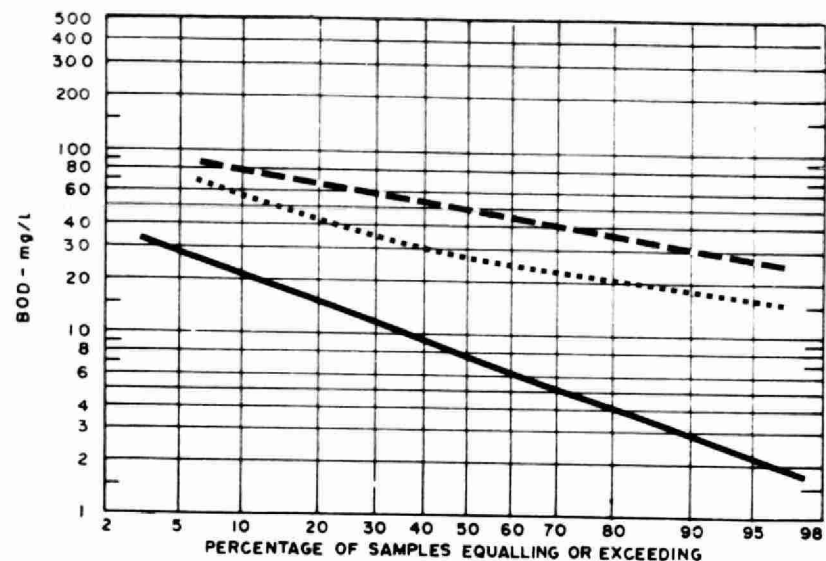


DESIGN CAPACITY — — — — —

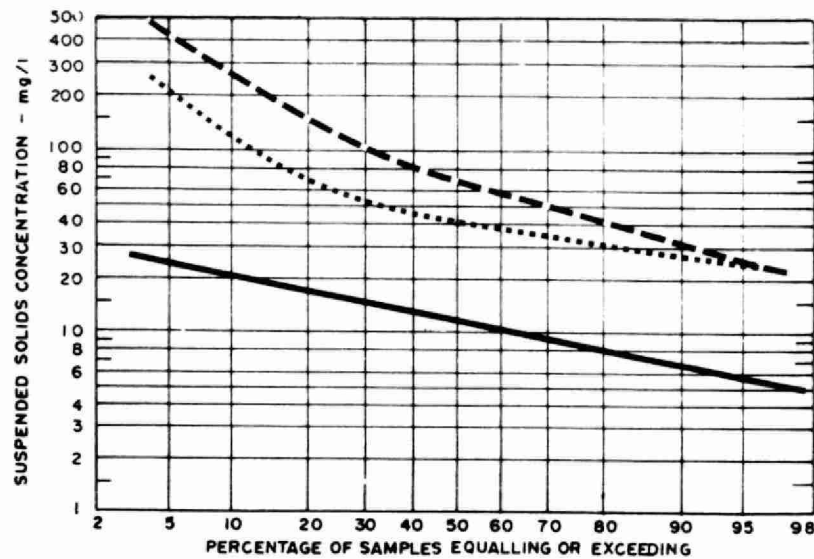
PLANT PERFORMANCE




MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l P	EFFLUENT mg/l P
						%	10 ³ pounds			%	10 ³ pounds		
JAN	10.63	.34	.43	26	10	62	1.7	25	10	60	1.6	2.4	1.2
FEB	9.56	.34	.38	50	22	56	2.7	40	10	75	2.9	3.5	1.9
MAR	11.04	.36	.44	33	18	45	1.7	45	20	56	2.8	2.3	1.6
APR	11.60	.39	.48	33	9	73	2.8	35	15	57	2.3	2.2	1.1
MAY	7.88	.25	.30	43	8	81	2.8	55	8	85	3.7	3.6	1.5
JUNE	7.13	.24	.32	50	5	90	3.2	60	13	78	3.4	2.9	1.4
JULY	6.06	.20	.25	34	3	91	1.9	75	8	89	4.1	3.3	1.4
AUG	6.04	.19	.30	60	3	95	3.4	263	5	98	15.6	4.3	2.2
SEPT	3.88	.13	.18	135	2	99	5.2	165	5	97	6.2	4.1	3.4
OCT	6.84	.22	.31	37	7	81	2.1	75	20	73	3.8	2.6	1.2
NOV	6.30	.21	.32	73	7	90	4.2	73	10	86	4.0	3.7	1.8
DEC	6.36	.21	.34	73	15	79	3.7	130	15	88	7.3	3.1	2.2
TOTAL	93.32	-	-	-	-	-	35.4	-	-	-	57.7	-	-
AVG.		.25	MAXIMUM .48	55	8	85	3.0	92	12	87	4.8	3.2	1.8
No. of Samples	-	-	-	22	22	-	-	22	22	-	-	22	22

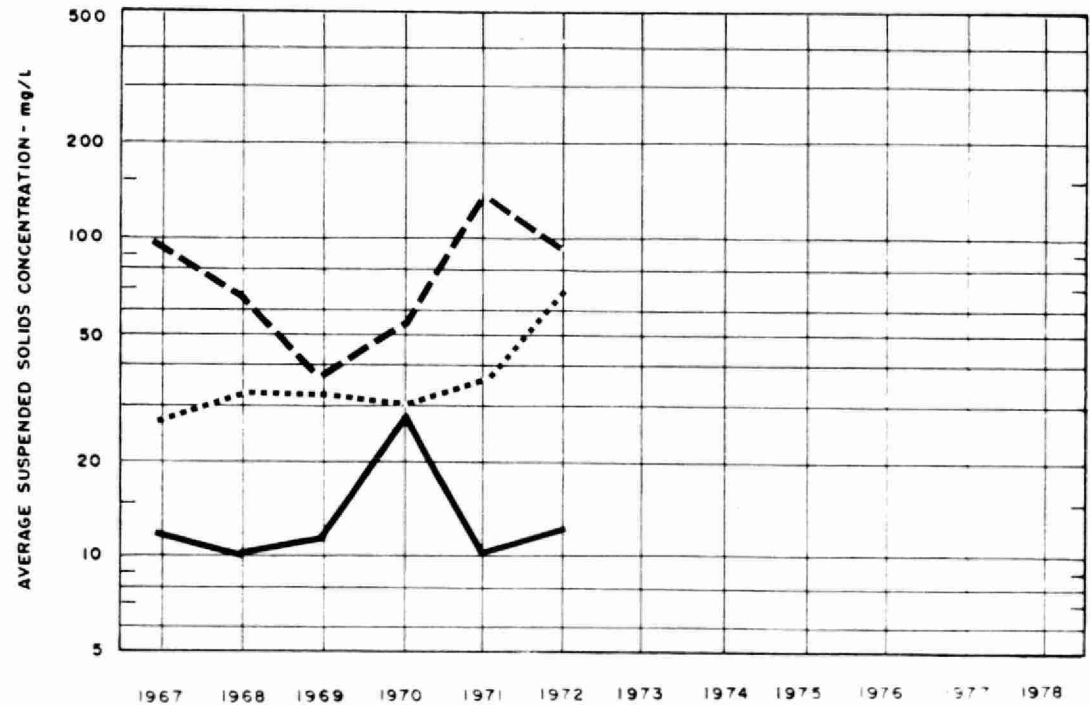
BIOCHEMICAL OXYGEN DEMAND



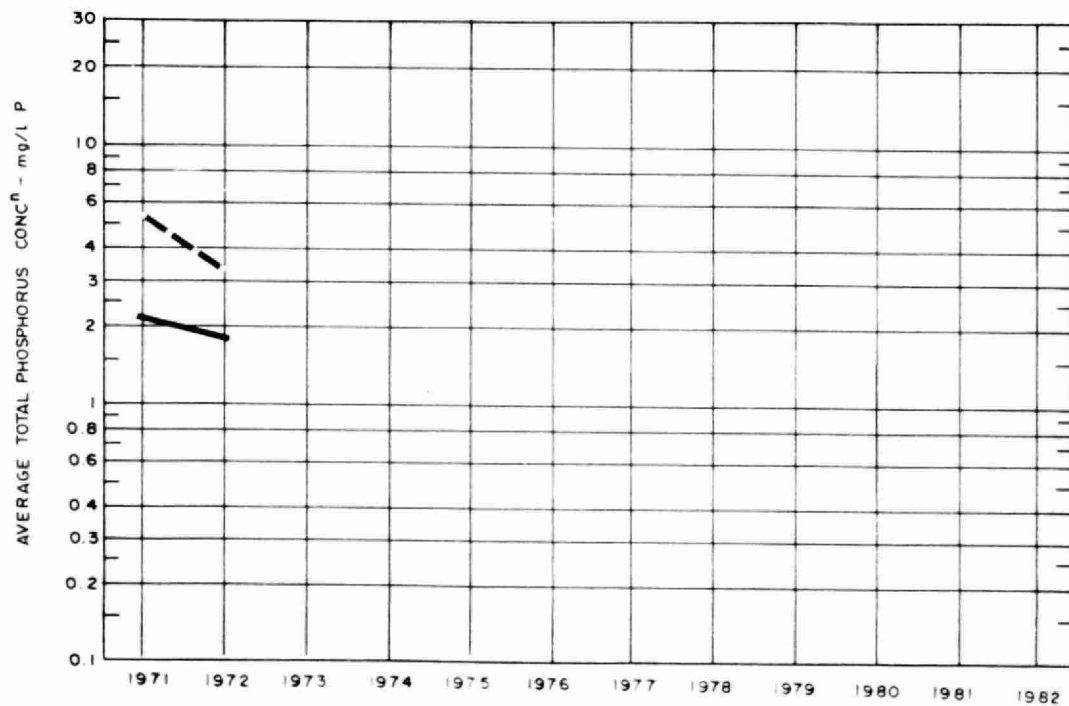
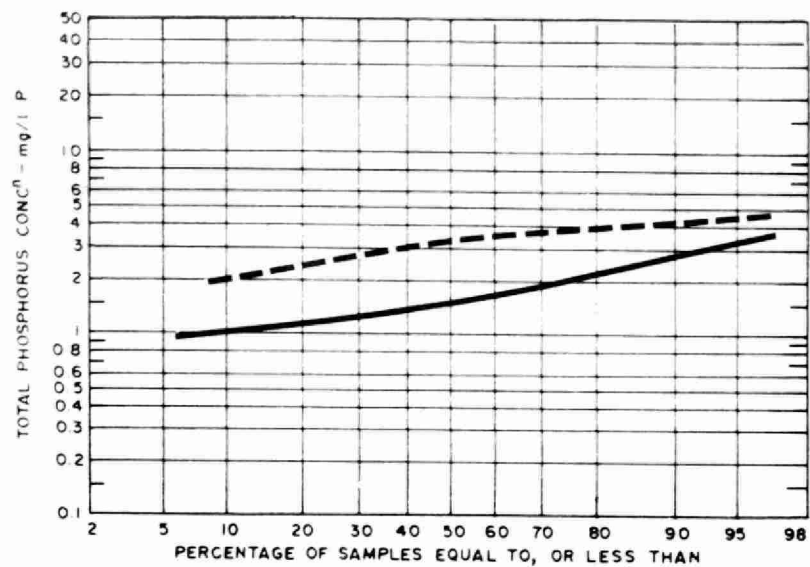
SUSPENDED SOLIDS



PLANT INFLUENT 
 PRIMARY EFFLUENT 
 PLANT EFFLUENT 



PHOSPHORUS

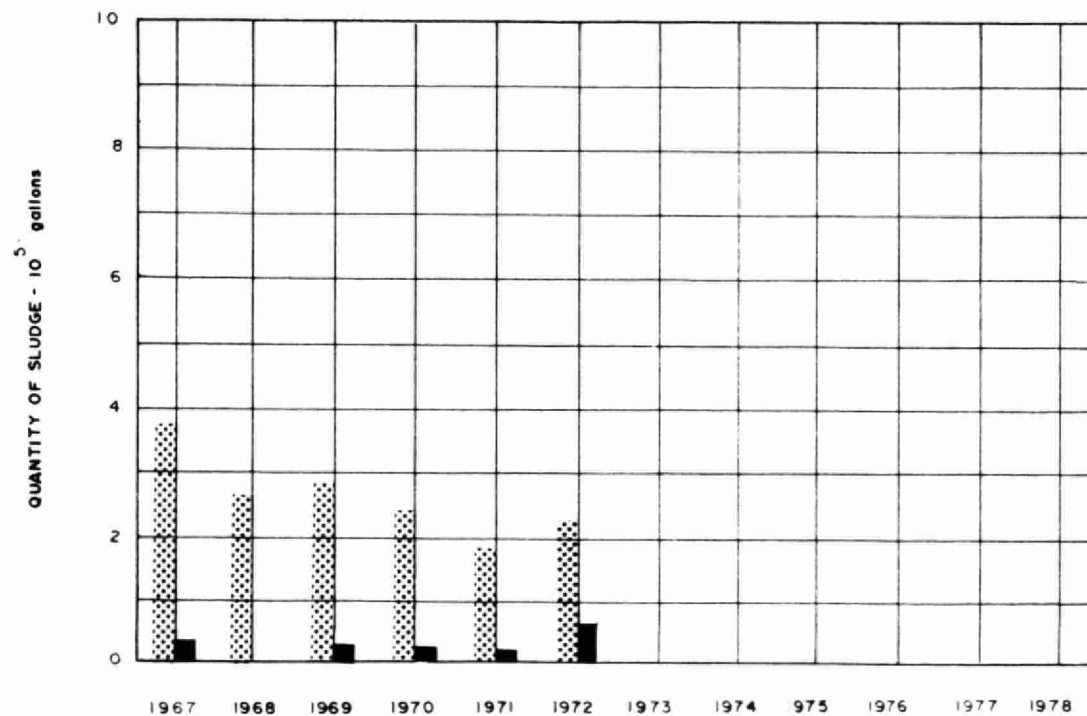
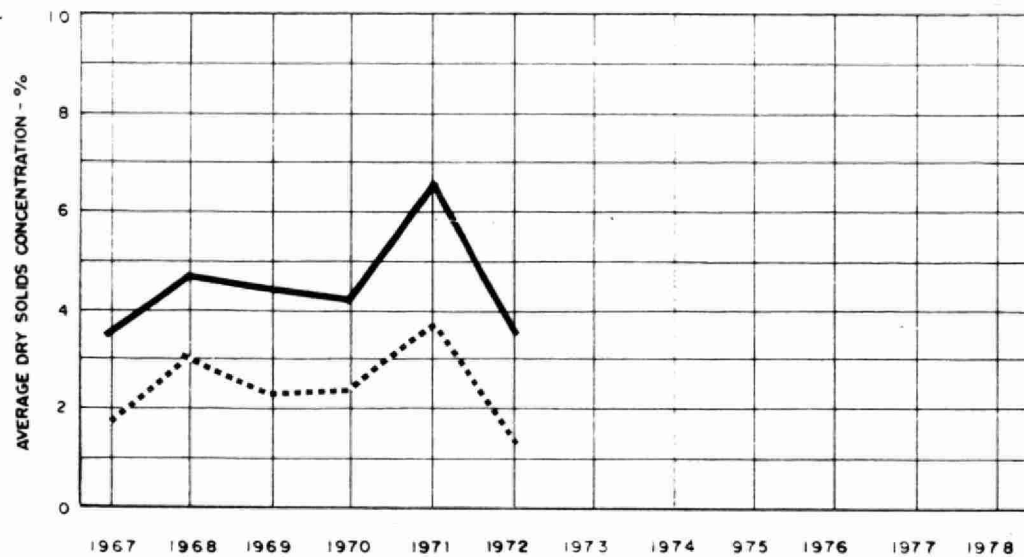


PLANT INFLUENT -----

PLANT EFFLUENT _____

DIGESTION

RAW SLUDGE
DIGESTED SLUDGE —————



RAW SLUDGE TO DIGESTER
DIGESTED SLUDGE REMOVED —————

TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
	QUANTITY REMOVED cubic feet	CL ₂ USED pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT T. S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %		
JAN		272	2.6	24	25	2180	.07		18.6	1.5		7.1	3.7			42
FEB		258	2.7	38	50	2440	.11		14.7							
MAR		270	2.4	28	30	2500	.08		17.1							
APR		247	2.1	29	33	2220	.09		17.7							
MAY		230	2.9	23	35	2540	.06		18.0							
JUNE		217	3.0	24	50	2520	.06		19.8			8.5				50
JULY		99	1.7	14	25	2180	.03		23.7			11.3				67
AUG		169	2.8	24	125	2600	.05		19.8							
SEPT		186	4.8	57	45	2700	.07		18.3			22.6				134
OCT		187	2.7	25	30	2580	.06		18.0							
NOV	8	166	2.6	43	40	2550	.10		17.7			11.3				67
DEC		134	2.4	55	73	1840	.17		19.2							
TOTAL	8	2435	-	-	-	-	-	-	222.6	-	-	60.8	-	-	-	360
AVG.	cu. ft/mil gal	203	2.7	33	64	2404	.08		18.6	1.5		5.1	3.7			30

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